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The Hibernation in Missouri of Zerene caesonia (Stoll) and Euptoieta claudia (Cram.) (Lepid.: Pieridae and Nymphalidae).

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Our knowledge of the winter status of many of our familiar butterflies is far from complete. This is especially true of a number of species of southern distribution which are known to remain on the wing during the winter months in the South, but whose winter habits in the northern parts of their ranges are shrouded in mystery. Missouri is a border state with respect to these species, and for that reason, data on their hibernation in Missouri should have special significance. The Missouri species that deserve study in this connection are *Phoebis sennae eubule* (Linn.), *Zerene caesonia* (Stoll), *Eurema nicippe* (Cram.), *E. lisa* (Bdv. & Lec.), *Danaus plexippus* (Linn.), *Euptoieta claudia* (Cram.), *Precis coenia* (Hbn.), and *Anaea andria* Scud. Of these, only *Anaea andria* has heretofore been definitely known to hibernate in the imagine stage. The following records refer to *Zerene caesonia* and *Euptoieta claudia.*

Autumn individuals of *Zerene caesonia* are of the form *rosa* McNeill, characterized by the more or less extensive pink suffusion on the lower surface of the wings, especially in the females. In contrast, butterflies of the summer brood are plain yellow below, with no suggestion of pink. Butterflies captured in the spring, therefore, show by this character whether they belong to the brood that ordinarily emerges in the fall or the one that emerges in early summer. The forms and dates of the specimens in my collection are:

Form *rosa*: Mar. 6*; Apr. (no date)*; May 1.

Form *caesonia*: May 22, 25; June 11, 12, 16.

Form *rosa*: Sept. 11*, 15, 22; Oct. 23.

Specimens starred (*) represent the form of *rosa* known as *rosca* Roeber and belong to the autumn brood.

The earliest three spring specimens show the coloration of the brood which emerges in the fall; however, this is only circumstantial evidence that they actually emerged in the autumn preceding their capture. But the one caught on March 6 (1932) was found actually hibernating, under a small log on the east slope of a narrow valley. The butterfly was lying on its side, dormant, and was clinging with its legs to debris on the ground. This observation was made shortly before 11 a. m., when the temperature was 27° F., at Ranken (4 miles east of Eureka, St. Louis County), Missouri.

Less conclusive is the evidence for hibernation in *Euptoieta claudia*. This species is supposedly triple-brooded, but I find no break in its flying period during the summer, though the autumn brood is well set off. I have specimens taken on the following dates:

Summer brood: June 23.

Autumn brood: Sept. 21; Oct. 26; Nov. 1, 9.

Representative additional dates of its occurrence, taken from my records, are:

Summer broods: May 25; June 3, 14, 27; July 5, 12, 26; Aug. 10.

Autumn brood: Sept. 20, 22; Oct. 2, 11, 29.

Possible hibernators: May 13.

At Ranken, May 13, 1932, I saw a badly worn and faded female, and later on the same day a male just as worn, flying about on a sheltered, sunny hillside. The early date (for this species) and the evident worn condition of the butterflies, suggested strongly that they had hibernated. In view of the complete absence of records of possible hibernators in other years, it may be that 1932 was an exceptionally favorable year and that hibernation in Missouri takes place only under such favorable conditions. Scudder (Everyday Butterflies, 1899, p. 358) says, "It seems probable that the butterfly often hibernates, and that some of the autumn chrysalids do not disclose their inmates until very early the following spring"; but

Scudder worked in a locality considerably farther north than Missouri. My experience has been that all that have pupated emerge in the fall, but there are insufficient data to indicate whether the usual overwintering stage is the larva or the adult. French (Butterflies of the Eastern U. S., 4th ed., 1914, p. 167) says that the last brood probably hibernates in the larval state. A need for further observation is apparent.

On Lerodea telata Herrich-Schaeffer and tyrtaeus Ploetz (Lepidoptera: Hesperiidae).

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There seems to have been more or less confusion in the application of the names *telata* and *tyrtaeus,* the latter usually having been considered as a form of or a synonym of the former. An examination of the male genitalia shows that the insects to which these names should be applied are really specifically distinct.

Lerodea telata Herrich-Schaeffer (Fig. 1).

1869. *Cobalus telata* Herrich-Schaeffer, Correspondenzblatt des Zoologisch-Mineralogischen Vereines zu Regensburg, xxiii, p. 201.

1883. *Hesperia telata* Ploetz, Stettiner Entomologische Zeitung, xliv, p. 51; *apellus* Kaden, i. l. Laguayra.

Herrich-Schaeffer did not mention the locality whence came his type material. The original description distinctly says that the spots of the forewings are yellow and Ploetz also says that they are of that color. Specimens before the writer from localities in Venezuela, Trinidad, British West Indies and Brasil have yellow spots on the primaries and these are considered to be the true *telata of* Herrich-Schaeffer.

Examination of the male genitalia of four specimens from the countries above mentioned shows the same form in all of them. In the figure here given of a specimen from Venezuela it will be seen that the claspers terminate in a short triangular apex, immediately back of which rises a stout dorsal tooth extending obliquely backward.